AN

ESSAY

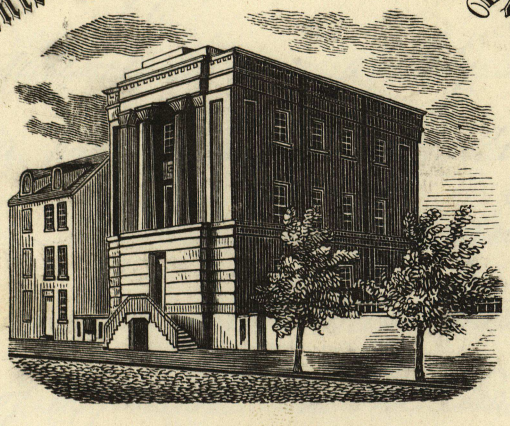
ON

The Divisibility of Matter etc. etc.

RESPECTFULLY SUBMITTED TO THE FACULTY

of the

Homœopathic Medical College of Pennsylvania,



FOR

The Degree of Doctor of Medicine

BY

Samuel J. Bunstead of Penn. Ills

Philadelphia, February 1st 1862.

In its Relations to Homoeopathic Medicine &c &c.

The mere act of uniting an Essay upon any particular subject, is not of itself important, nor is it one calculated to embarass, or agitate the man well informed upon his subject.

But I must confess, that when called upon to unite an Inaugeral Dissertation upon a medical subject, previous to receiving the degree of Doctor of Medicine, I approach the task, feeling a want of confidence in my ability to handle the subject in a proper and satisfactory manner.

Again, a disadvantage I labor under, in common with most medical Students, is a want of experience in the Practice of Medicine, and consequently of other branches of Medical Science, (for they are inseperably connected) renders the selection of a subject which is not common, very difficult. In offering this to the Faculty for their consideration, I give the best I have, feeling that the subject is one, which I do

not remember having ever seen written upon, at least in this college, And though many of the arguments presented, are not original, still I think that fact will make them none the worse, as the facts might be known and yet an application of them to the subject be entirely wanting.

My object then is to show that the high attenuations of medicines used in the Homoeopathic school, are capable of performing cures of disease, and in fact to show that they are not reduced to nothing, as alleged by some Alloeopaths, but that we have as good a reason for still regarding them as medicinal substances proper, as in fact something having an existence, as many things which no one has ever doubted having an existence in the material world, though not capable of visible

demonstration. It will readily be seen that the selection of the subject is as good as could be found for the object in view. For if I prove that matter is divisible to an indefinite extent, I prove that the high attenuations of our medicines are still capable of performing cure's. And if I prove the latter first; I also prove the former. In endeavoring to prove my subject, I will take as my authorities, scientific works generally, the different works by old school writers of eminence, works on Chemistry &c.

For I believe it is more convincing to a man to prove to him that he is wrong, from his own words, than from the words of others. I will also endeavor to show that matter may be divisible to a great extent and be detected by the senses. And yet men would limit it by saying

we can detect it no farther, therefore the division ceases at that point, and does not go beyond. We will make no divisions in treating of this subject, as we have not a twofold object in view, and it will consist in argument after argument being presented, until we shall have presented enough to settle the point at issue.

In the science of Chemistry, an arbitrary limit is made to the divisibility of matter; for the purpose of rendering tenable the Atomic Theory, of that science. This theory endeavors to show us that an atom in Chemistry cannot be cut; (the meaning of the word atom is; that which cannot be cut.)

They (the originators of this theory) also tell us that an atom of any element, is represented by the smallest portion of that element; that will

combine with any other. The equivalent numbers represent the weight of these atoms, hence it will be seen, that they must vary in size and weight in the different elements.

Now I am not willing to concede that the Atomic Theory places any obstacle in the way of the doctrine of the infinite divisibility of matter. We may regard an atom, as an aggregation of molecules of any elementary body, of a sufficient number to exercise the action of chemical affinity. And this atom, or said aggregation of molecules, is always definite in its combinations with every other element. And I do not look upon an Atom (or what they call an atom) as a thing which cannot be cut; except in a strictly chemical view. It may be that at this point the substance is further divided, leaves the sphere of Chemistry

and enters into what we may call, for convenience the Spiritual sphere. I would remark that the Atomic Theory was introduced, for the purpose of simplifying the Study of Chemistry, which laudable object it has in a measure accomplished, but beyond this I think it unworthy of any attention.

The philosopher on the contrary can conceive of no limit to the divisibility of matter. I cannot help thinking how absurd it is for any one to despise small things on the ground that they are not demonstrable to the senses, as if there existed nothing in the world, but that which we could understand and see. How many strange things take place every day of which we know nothing, and which we assign to their respective places among the mysteries

of Nature, yet do not doubt that there is some material thing which causes the phenomenon.

If Nature had made our eyes more powerful than the microscope, we would then be able to understand and to see many things, which we at present know to exist, only by their action in immense masses.

Our optic nerves seem to be capable of appreciating any thing, no matter how small, that we can demonstrate by the most powerful optic instruments. So if our eyes were even ten thousand times more powerful than the microscope, we would find our nervous systems capable of receiving the impressions, and our minds of digesting them. It is plain to be seen however that our eyes possess the optic power best suited to our use and happiness. In thus endeavoring to prove

the efficacy of our attenuations, I do not wish to be understood as advocating exclusively the higher potencies, but I must be permitted to use the range from the crude drug to the one thousandth attenuation. And contrary to the opinions of some, I would say that in regard to the usefulness of these potencies in the cure of disease, I am disposed to place a limit; and I would feel disposed to place it somewhere between the three hundredth and one thousandth potency, considering it unnecessary to go beyond, and the act of doing so, as generally indicating a mind carried away with the novelty of a new thing.

We would state that the best way to judge of all such substances as our Homoeopathic attenuations, is by their effects. This is the way we judge, of material that is

so finely divided as to render it doubtful whether it really is matter or not. And no person of common sense care for a moment doubt, that these attenuations possess great curative power, after seeing them used in a dangerous disease, and when we know that the natural tendency of that disease is, to terminate in death. How could it be possible for these medicaments to save life in these cases, if they did not possess great power over the forces of Life and Death.

We will now enter more directly into the work before us, by considering what arguments the subject of Light is capable of furnishing us with, together with other substances of a similar nature. This substance which pervades one half of our globe during the day, given to us from the Sun, travels at the rate of

two hundred thousand miles in a second of time. It can be seen, (or its effects) this is of such a subtle nature, that it is even doubted whether it is any thing or not. Of its use to man and of its powerful effects, who will doubt? It is almost as necessary to our existence as the food we eat; or the air we breathe.

If we were deprived of it, we would pine away and die as surely as by poison, because life in the vegetable kingdom could not be supported, consequently animals having no vegetables to eat would die, and man having neither to depend upon, would perish also. If any one doubts the influence of Light on vegetation, she has only to repeat the old experiment with the potatoe vine in a dark cellar, or with any vegetable, and they will be satisfied with the result. Here then we

have something displaying a power scarcly surpassed in the world, one that few deny, and yet learned men say Light is not matter. Because they cannot feel and measure it, I suppose. How absurd, it is evidently something, then why not call it matter, or why define matter to be so and so, with certain properties, when it excludes some of the most important substances in the world.

Closely allied to Light we have Electricity and Magnetism. These are all classed as imponderable substances, but I cannot help thinking, that in the admittance of them into any classification, an admission is made that they are a certain kind of matter. At any rate all these substances are in a measure to be compared to our high potencies, in point of minute division, and yet ~~se~~ how powerful all are,

and of what importance to man, and to the material world. There is nitric acid, a most valuable substance, and one that is probably of more use to man in the arts and sciences than any other, and without which, at the present time of war, we would get along very poorly.

And how is this acid manufactured? All that we have, or have ever had, is manufactured in the air above us, during thunder storms, and by the power of electricity alone, it is manufactured for our use. Now let us look at the air; it is composed of Nitrogen, Oxygen, Carbonic acid, and a small quantity of ammonia, these gases are merely in a state of mixture, and not of chemical union. The atmosphere extends about forty five miles above the surface of the earth, and may be considered as an ocean,

we living at the bottom. The air pervades all space not occupied by other bodies, and permits no such thing as a vacuum to remain undisturbed. Let any scientific man, take an air pump the best that can be procured and endeavor to procure a vacuum, after working for hours, ask him if he has succeeded in procuring a perfect vacuum, and I think he will tell you that the atmosphere is capable of such a degree of expansion, that after the greatest efforts with the pump, he would be able to conceive of the rarified air filling up the whole of the receiver.

This is the opinion generally entertained by philosophers and scientific men, and I think it is almost as fine a point as the two hundredth (200th) attenuation of our medicines. We frequently find some of the most convincing arguments,

in favor of the power of infinitesmals, presented to us by the action of agents conveyed in the air. Such as the malaria producing intermittent fever, the contagious miasm of Variola, also the epidemic miasm of Cholera, Yellow fever &c. More might be enumerated, but the instances cited will prove sufficient for my purpose.

Will any Alloeopathic physician inform me, precisely what amount of malaria it will take to produce a case of fever and ague? Will he also be kind enough to inform me, whether a man has to take an Alloeopathic dose of the Variola poison to contract the small pox? Has any one ever seen these substances? No! And yet Alloeopathic writers are among the loudest to assert that they exist.

Let them weigh the electricity of the air, the malaria of fever and ague, cholera &c, and

I will show them the exact amount of medicine contained in the highest Hahnemanian potency. Untell they can demonstrate to us the former, we claim the right to with hold, without exciting scorn, a demonstration of the latter.

We can again demonshate the divisibility of matter to a great extent, by the delicate manipulations of Chemistry. This may be more satisfactory to our brethern of the old school, who will not belive anything they cannot understand, and thereby confining their knowledge within very narrow limits. Sulphuric acid can be detected when but a minute Homoeopathic dose is present in a given quantity of liquid.

According to Taylor's Topicology, pages 174 and 175, the best test is that of Nitrate of Barytes, which throws down a white sulphate of barytes, which is insoluble in any acid or alkali.

For fear it might be some other acid which produces the precipitate, another process is gone through to determine whether this is really a Sulphate of barytes or no. Mr Taylor says; "the delicate action of this test is such, that a solution containing not more than the twenty five thousandth (1-25000th) part by weight of sulphuric acid, is precipitated by it.

It is also stated in "Noad's Chemical Analysis" page 197, that one part of Nitric acid in twenty four thousand (24,000) parts of water, may be detected by the use of the Protosulphate of Iron. Again, it is stated in Rogers edition of "Turners Chemistry", that one grain of iron can be detected in thirty seven thousand (37,000) quarts of water, by the addition of Ferrocyanide of Potassium to the water. These gentlemen are all good Allopathic authority

and in making fun of the infinitesmals of Homoeopathy, no doubt lose sight of their own evidence on this point.

We will now speak of the minute quantities of Arsenic, that are capable of demonstration by chemical tests.

Says Taylor page 285, in regard to the detection of this poison; "Marsh's process is undoubtedly one of great delicacy, M. M. Danger and Flandin assert that metallic deposits may be procured when the arsenic forms only the two millionth (2 000 000th) part of the liquid examined.

M. Signoret states that he has procured metallic deposits with only the two hundred millionth part of arsenic in the liquid: this is in the proportion of one grain of arsenic, dissolved in three thousand (3000) gallons of water." He says on the same page; there is no doubt that

considerably less than the millionth (1-1000000) part of a grain of arsenic may, by Marsh's test be rendered visible on a glass plate."

Dr Taylor on the same page says further; that it is possible to distinguish with the eye a piece of gold leaf, which would weigh less than the ten millionth (1-10000000th) part of a grain.

These, certainly are pretty good evidences of the minute divisibility of matter, and from authorities no one feels like disputing.

In Wood and Bache's Dispensatory page 1025, we find the following: "Millon has ascertained the curious fact, that the presence of so small a quantity as the one ten thousandth (1-10000) part of lead in mercury, raises its boiling point. I wonder that these learned gentlemen would believe that such a small thing could have any such influence over the mercury.

Most every one knows the avidity with which Nitric acid will attack iron or pieces of wire, it being impossible to introduce a wire into it, without it being attacked. It has no effect upon Platinum, therefore if we take a number of pieces of wire, being careful to have the ends smooth and rounded, and holding a leaf of platinum foil in the acid, we may be able to pass a wire along the edge of the foil, right into the acid without any action taking place between them. And I have seen the foil removed at this stage of the proceedings, and a second wire introduced by sliding it along the first, which fully protects it from the acid, and in this way I have seen four or five introduced in succession, with perfect safety to the last one introduced.

This is a very delicate experiment and requires great care in its performance to

insure success, and was illustrated to the class by Dr Semple, our Professor of Chemistry. Here we indeed have a dose of the one thousandth (1000) Hahnemanian potency.

It will be well to look next at the subject of Catalysis. By it is meant the action of presence, when a body being in the presence of others, resolves them into new compounds or simply changes their properties, without itself undergoing any change. I am disposed to think that the body thus acting does part with some of its substance, but with so little that our scales are incapable of appreciating the quantity. We have as good a right to this opinion, as to any other, as it is by no means definitly settled, what the action of Catalysis is. One thing is evident and that is, that we have a display of power, which is by no means incon-

siderable, and by something which is of an infinitesmal nature, for no one has yet determined how much of the body thus acting left it to produce the change in the other, and probably never will. Illustrations of the action of Catalysis may be found in the various processes of Physiology. For instance the organic matter of Saliva called Ptyalin, confers upon that fluid the property of converting starch into sugar, also the organic principle of Gastric juice, termed Pepsin, produces the change in nitrogenized food which we call chyme, peptones or albuminose.

In either of these cases there exists not more of this organic matter, (without which these changes would not take place) than from one to three parts in a thousand. Here it is plain to be seen Nature endeavors to instruct us. Let us now take up something else.

Taylor in his work on Toxicology page 33, uses these words; the larger the quantity of fluid in which a soluble poison is taken, the more speedily it is carried into the circulation, and of course the more speedy it is in producing its poisonous effects.

This is in direct conformity with the views of the Homoeopathic profession, and certainly is an argument in favor of infinitesimals in the cure of disease. Since if poisons act quicker and more energetically when in a state of minute division, medicines, which are nothing but poisons, must be influenced in the same manner. In an extract from the Annales de Therap., and Monthly Journal of Medical Sciences, a gentleman by the name of Bonjean adduces his testimony to this same idea. He states that after taking in the course

of a day, in doses of a glass every two hours, a quarter of a grain of the iodide of potassium, dissolved in a quart of water, after which he was able to trace for seven days, the presence of Iodine in his urine, and for six days in his saliva. At another time he took at a single dose, five grains of the same substance, dissolved in two ounces of water. In this case, traces of Iodine were discovered in the urine during twenty eight hours only, and in the saliva but seventeen hours.

We find from these instances that one quarter of a grain of a certain medicine well dissolved, will pervade the whole system more thoroughly, and act longer than five grains taken in a less comminuted form. This also clearly demonstrates the superiority of action of infinitesmals substances over those

more crude. I will next state that the comminution of substances has an effect in changing the properties of some substances, and if so (which I will presently show) why may it not develop a more curative power by bringing the medicine more on a level with the system, upon which it has to work those cures.

To prove this I will insert some ideas of a French Allopath, M. Dorvault, taken from L'Union Medicale No 150, by the British and Foreign Review of April 1852. He says, that most pharmacologists consider pulverisation or comminution, as a mere change in the form of bodies, each particle being considered as a diminutive, without any change in the character of the substance. While he admits this usually to be the case, he thinks there are a greater number of substances in

which this operation induces a modification of their chemical characters and medicinal properties. He cites three instances to prove that he is correct in his premises, the first is that of sugar which he says loses a portion of its solubility and sweetening power, ~~alone~~ by pulverization, and makes the inquiry whether it can be due to an altered electrical condition, as the phosphorescence developed during the process might lead one to suspect.

Next Gum Arabic when powdered possesses neither the same taste nor solubility as when entire: and thirdly; that while a kilogramme of water will dissolve forty grammes of arsenious acid in the vitreous state, it will only dissolve fourteen of the powdered arsenic. He seems to think that triturating may develop the properties of medicines, This is a start in the right

direction, and we hope the subject will be further investigated by M. Dorvault, as we think it interests the Homœopathic profession particularly. The Allœopaths laugh at our preperations, in regard to their infinite divisibility, and yet in a number of instances the only difference between us in that respect, is that they do not carry their comminutions to the extent we do.

For that they do practice trituration and comminution is made evident in their preperation of blue pill from mercury, consisting of the division of the molecules of mercury, thus rendering it useful as a medicine, being almost inert without such comminution.

Let us look to Nature and see if we can learn anything in regard to the operation of comminuted materials. We have a number of

medicinal springs throughout the world, to which thousands resort, to seek the boon of health, and I would ask whether in resorting to these apothecary shops of Nature, they get Allopathic doses of medicine? If they do they are small ones, as the quantity of medicinal substance in them is generally very small.

The whole process of human physiology displays to us in a striking manner the principle of dynamization. Look for instance at the building up of our osseous system, the earthy material is deposited from the blood, the principle earthy constituents of the skeleton are the phosphates, these in a normal state exist only in the proportion of two or three parts in a thousand, while the whole amount of earthy salts, is but ten or twelve in a thousand parts of blood.

This might again be demonstrated in other physiological processes, but it would be a useless repitition. A few more instances may be adduced to show the divisibility of matter when we will draw this essay to a close.

Many, have no doubt heard of the Eternal grain of Musk, which stood in one of the palaces of Rome for more than a hundred years, held in a delicate scale nicely balanced, and during all this time was constantly giving off its powerful odor, which was so strong, that one of the Popes was liable to be attacked with convulsions every time he ventured within smelling distance of it. And yet, exposed to this constant loss of substance by exhalation, for more than a century, no loss by weight could ever be detected by the most delicate scales.

It has been asserted by a high authority in Europe, that Chalk was composed of the remains of an antdeluvian insect; which he says abound to the number of millions upon millions, in a cubic inch. And when we remember that each insect is composed of carbonate of lime, and carbonate of lime being composed of five other atoms; namely; Carbon one, Oxygen three, and Lime one, and that each insect has also its seperate organs, tissues &c we have an almost inconceivable division of matter.

But we are not through yet. In a November number of the Medical and Surgical Reporter of Philadelphia, there is an article upon Water, its history, uses &c., by S. W. Francis M.D. in which he states upon the authority of Professor Owen, (and which he claims to be perfectly reliable) that

in one drop of water, five hundred millions of beings, of the genus, monas crepusculus may be found. And he further adds; Who is there that can grapple with this limitless idea? I would answer, surely not men who like an Allopathic bretheren, will receive no argument from Nature or any one else, except they can make it coincide with their own narrow views.

We think we have now succeeded in presenting a good many arguments in favor of the power of infinitesmals, and also proved that matter is divisible to an almost (possibly quite) unlimited degree. Men who think themselves wise and scientific, may laugh at and deride the power of infinitesmals, and declare it to be against all common ~~sense~~ and reason to adhere to such a system. But scoffs and

jeers are no arguments, and until something better is used by the opponents of Homoeopathy, the system will surely grow and flourish. Surely it is not unreasonable to suppose that we gain something by approaching as nearly as possible to a level with the vital forces of the organism, in the cure of disease. We would not go to work at the delicate machinery of a watch, with blacksmiths tongs and nippers, neither should we undertake to repair that most delicate of all machinery, the human organism, with implements so coarse and ungainly, as to preclude the possibility of our doing so with safety. Neither let us be too confident in our own wisdom, but let us be ever ready to read those "Sermons in Stones" which Nature has so abundantly scattered in our pathway.